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Aneurus (Neaneurus) cai nov.sp. nova from China and synonymy of *Aradus chinensis* VÁSÁRHELYI 1988 (Heteroptera, Aradidae)

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A b s t r a c t : *Aneurus (Neaneurus) cai* nov.sp. from Yunnan, China is described and figured and compared with previously known species. Reinvestigation of type material of *Aradus chinensis* VÁSÁRHELYI 1988 proved, that it is a synonym of *Aradus hieroglyphicus* J. SAHLBERG 1878. A key for *Neaneurus* is given.

K e y w o r d s : Heteroptera, Aradidae, Aneurinae, *Neaneurus*, new species, China.

Introduction

Three species of *Aneurus*, subgenus *Neaneurus* were described to date (HEISS 2001): *A. macrotylus* JAKOVLEV 1880 (Ussuri, Russian Far East); *A. hubeiensis* LIU 1981 (Hubei, China) and *shaanxianus* HEISS 1998 (Shaanxi, China). A small lot of Aradidae from Yunnan, China, contained another taxon belonging to this subgenus which is described here as *Aneurus (Neaneurus) cai* nov.sp.

In the basic publications on Chinese Aradus of HSIAO 1964 and LIU 1981, the westpalaearctic *Aradus betulae* (LINNAEUS 1758) was reported from China. VÁSÁRHELYI 1988 recognized that the "betulae" – taxon from China is not *A. betulae* sensu LINNAEUS and described it as *A. chinensis* nov.sp. on material from Tianjin. Investigation of type material of *A. chinensis* and comparison with a series of the eastpalaearctic *Aradus hieroglyphicus* J. SAHLBERG 1878, has shown, that the differences mentioned by VÁSÁRHELYI are within the range of variability. Hence *Aradus hieroglyphicus* J. SAHLBERG 1878 = *A. chinensis* VÁSÁRHELYI 1988 syn.nov.

Material and methods

The study is based on material received from the German entomologist Klaus Voigt for identification and comprised 6 specimens of the new taxon of *Aneurus*.

The type material of *Aradus chinensis* VÁSÁRHELYI is deposited in the Deutsches Entomologisches Institut (DEI), now in Müncheberg, Germany. Paratypes of both sexes were borrowed and compared with *A. hieroglyphicus* from various localities of its distribution range.

Measurements are given in mm or units (40 units = 1 mm).

Depositories of types: Coll. E. Heiss, Innsbruck, Austria (CEHI); China Agricultural University Beijing (CAU) and coll. K. Voigt (Ettlingen, Germany).

Taxonomy

Aneurus (Neaneurus) cai nov.sp. (figs 3, 5, 8)

Holotype male, labelled: "China, Yunnan 2500-3100m, 25.58 N, 100.21 E, 30 V-3 VI 1993, Jizushan Mts. Leg. V. Kuban" (CEHI); paratypes: 5 females collected with holotype (CAU, CEHI, coll. Voigt).

Diagnostics: Distinguished from the related species by the more slender habitus, the anterolateral lobes of pronotum nearly straight and not projecting anteriorly, the shape of the scutellum, the differences in the male and female genitalic structures and the characters given in the key.

Description: Macropterous male (HT) fig. 3. Body elongate ovate. General colour dark brown with lighter membrane; head, pronotum, scutellum, dorsal external laterotergites (deltg) and legs finely granulate.

Head: About as long as wide across the eyes (30:31.5). Clypeus subparallel, genae thin and not reaching apex. Antenniferous lobes slightly diverging, blunt. Postocular lobes rounded. Antennae 1.71 × as long as width of head, segment I thickest and shortest, distinctly shorter than apex of clypeus; II and III of equal length, IV as long as II + III. Relative length of segments I:II:III:IV = 9:11:11:12. Rostrum shorter than head, rostral atrium open, rostral groove open posteriorly.

Pronotum: More than twice as wide as long (58:26). Anterior margin only slightly concave at middle, collar narrow. Lateral margins subparallel at humeri then sinuate and anterior portion parallel, anterolateral lobes rounded but not projecting anteriorly over collar. Disk with smooth callosities on anterior lobe, then transversely depressed, posterior lobe with coarse granulation.

Scutellum: Subtriangular about 1.7 × as wide as long (36:21) with rounded lateral margins. Disk with coarse granulation, sublateral ridges formed by larger granules.

Hemelytra: Corium very short, reaching about 1/3 of scutellum, lateral margin subparallel. Clavus visible as a small triangle. Membrane fully developed, reaching ½ of mediotergite VII, its surface finely wrinkled.

Abdomen: Elongate oval, lateral margins slightly rounded, posterior margin of deltg VII slightly truncate. Posteroexterior angles of deltg III-VI rounded and not projecting, deltg II and III not fused, with a small triangular contergite at its inner anterior angle. Tergal plate with a thin but distinct lateral robose strip separating deltgs from smooth surface of mediotergites. Spiracles II, V-VII lateral and visible from above, III+IV ventral, VIII apical on paratergites VIII.

Female: Generally larger than the male, antennae about 1.8 × as long as width of head.

Genitalic structures: Male: Pygophore wider than long with a basal ridge along its outline, slightly pyriform posteriorly (fig. 5); paratergites VIII triangular, rounded posteriorly, adhering to deltg VII and pygophore. Female: Tergite VIII about 3 × as wide as long, paratergites VIII wide and flat (fig. 8).

M e a s u r e m e n t s : Holotype male: Length 4.85 mm, width of abdomen across tergite IV 2.1 mm, ratio length / width of abdomen 2.31. Females: Length 6.0-6.3 mm; width of abdomen 2.8-2.85 mm.

E t y m o l o g y : Named in honor of my friend and excellent Chinese Heteropterologist Prof. Wanzhi Cai (CAU).

Key to the species of *Aneurus* subgenus *Neaneurus*

- 1(2) Lateral margins of pronotum with a conspicuous angular projection, antennae longer, about $1.9 \times$ as width of head (fig. 4). (China)..... *hubeiensis* LIU 1981
- 2(1) Lateral margins of pronotum sinuate, without angular projection, antennae shorter, at most $1.8 \times$ as long as width of head..... 3
- 3(4) Anterolateral lobes of pronotum distinctly projecting anteriorly over collar; antennal segment IV longer than II + III, visible part of genae larger with angular apex; scutellum widely rounded (fig. 2); pygophore of male small and rounded (fig. 7), tergite VIII of female as fig. 10. (Russian Far East, Korea, Japan) *macrotylus* JAKOVLEV 1880
- 4(3) Anterolateral lobes of pronotum not or only slightly projecting anteriorly (fig. 1,3); antennal segment IV as long as II + III, genae thin and adhering to clypeus; scutellum not widely rounded; pygophore of male (fig. 5, 6) and tergite VIII of female (fig. 8,9) different 5
- 5(6) Body wider and more oval, anterolateral lobes of pronotum slightly projecting anteriorly, lateral apex of antenniferous lobes acute (fig 1); pygophore wide and pyriform, paratergites VIII elongate (fig. 6), tergite VIII of female stout (fig. 9). (China)..... *shaanxianus* HEISS 1988
- 6(5) Body more elongate, anterolateral lobes of pronotum not projecting anteriorly; apex of antenniferous lobes blunt (fig. 3), pygophore more rounded and less pyriform, paratergites VIII subtriangular (fig. 5); tergite VIII of female wider (fig. 8), (China, Yunnan) *caii nov.sp.*

Aradus chinensis VÁSÁRHELYI 1988 (figs 11-21)

Due to lack of comparative material, the westpalaearctic *Aradus betulae* (LINNAEUS 1758) was reported to occur in China (HSIAO 1964, LIU 1981). VÁSÁRHELYI recognized it as a new taxon and described it on specimens from Tianjin as the new species *A. chinensis*. He compared it with the eastpalaearctic *A. hieroglyphicus* J. SAHLBERG 1878, stating that *A. chinensis* shows small differences in the length of antennae, particularly of segment II and in the male genitalic structures.

Investigation of comparative material now available of " *A. chinensis*" from China, Sichuan (Alshu-Nanping, Juizhaigou 8-13 VI 1991, lg. Holzschuh & Li (CEHI) and further specimens of *A. hieroglyphicus* from Ussuri and Primorsky Kraj compared with paratypes of *A. chinensis* has shown, that the male genitalic structures, important characters for species taxonomy of *Aradus*, are identical within some smaller variability (figs 11-17). The length of antennae and that of segment II is variable and specimens from Sichuan show no differences to those from Russia (figs 18-21).

Therefore a new synonymy is proposed: *Aradus hieroglyphicus* J. SAHLBERG 1878 = *Aradus chinensis* VÁSÁRHELYI 1988 **nov.syn.**

Acknowledgments

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Zusammenfassung

Von *Aneurus*, Untergattung *Neaneurus* HEISS 1998a, waren bisher 3 Arten aus der Ostpalaearktis bekannt. Nun wird nach Material aus Yunnan, China, eine neue Art *Aneurus (Neaneurus) cai nov.sp.* beschrieben und abgebildet und ein Bestimmungsschlüssel für alle Arten vorgelegt.

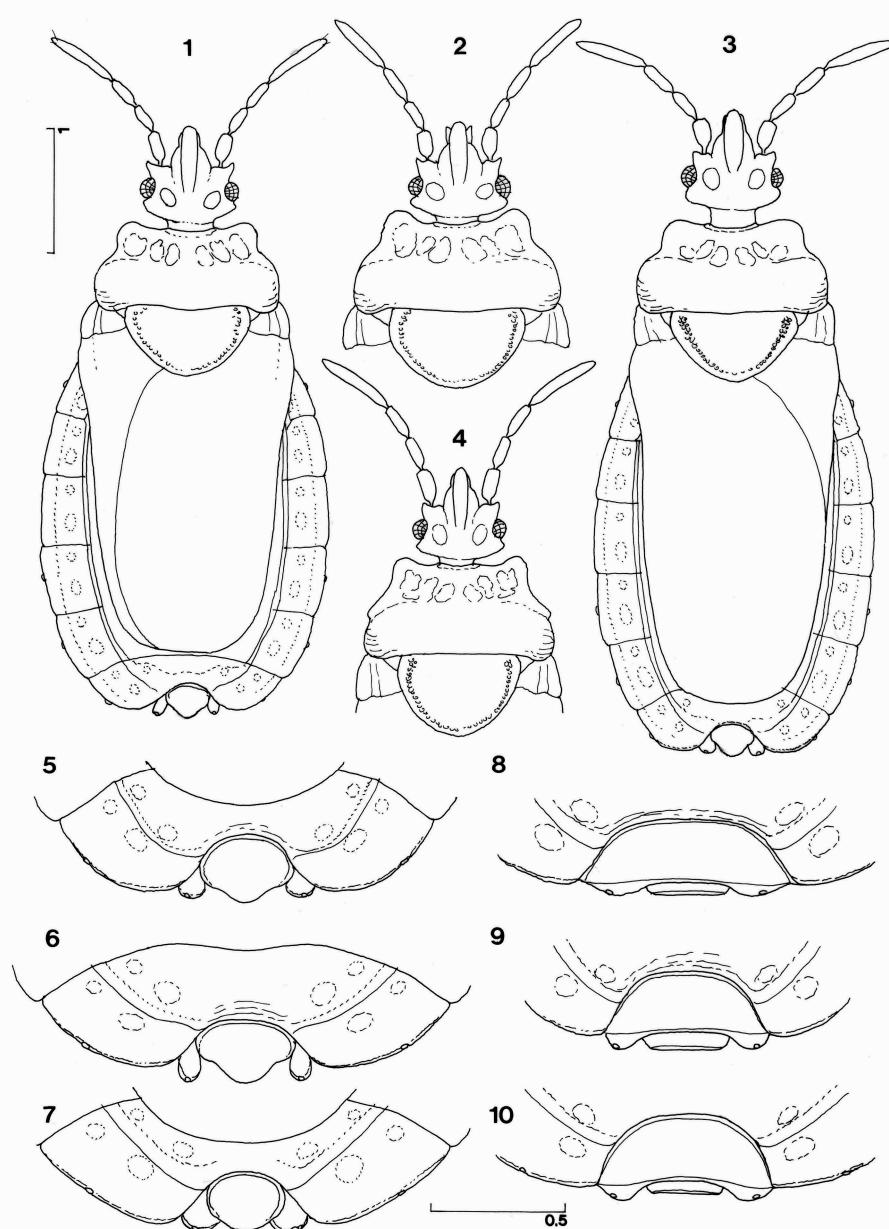
Der ebenfalls aus China beschriebene *Aradus chinensis* VÁSÁRHELYI 1988 zeigt eine Übereinstimmung in den Genitalstrukturen des Männchens und der relativen Fühlermaße mit dem ostpalaearktischen *A. hieroglyphicus* J. SAHLBERG 1878 und wird deshalb synonymisiert: *Aradus hieroglyphicus* J. SAHLBERG 1878 = *A. chinensis* VÁSÁRHELYI 1988 nov.syn.

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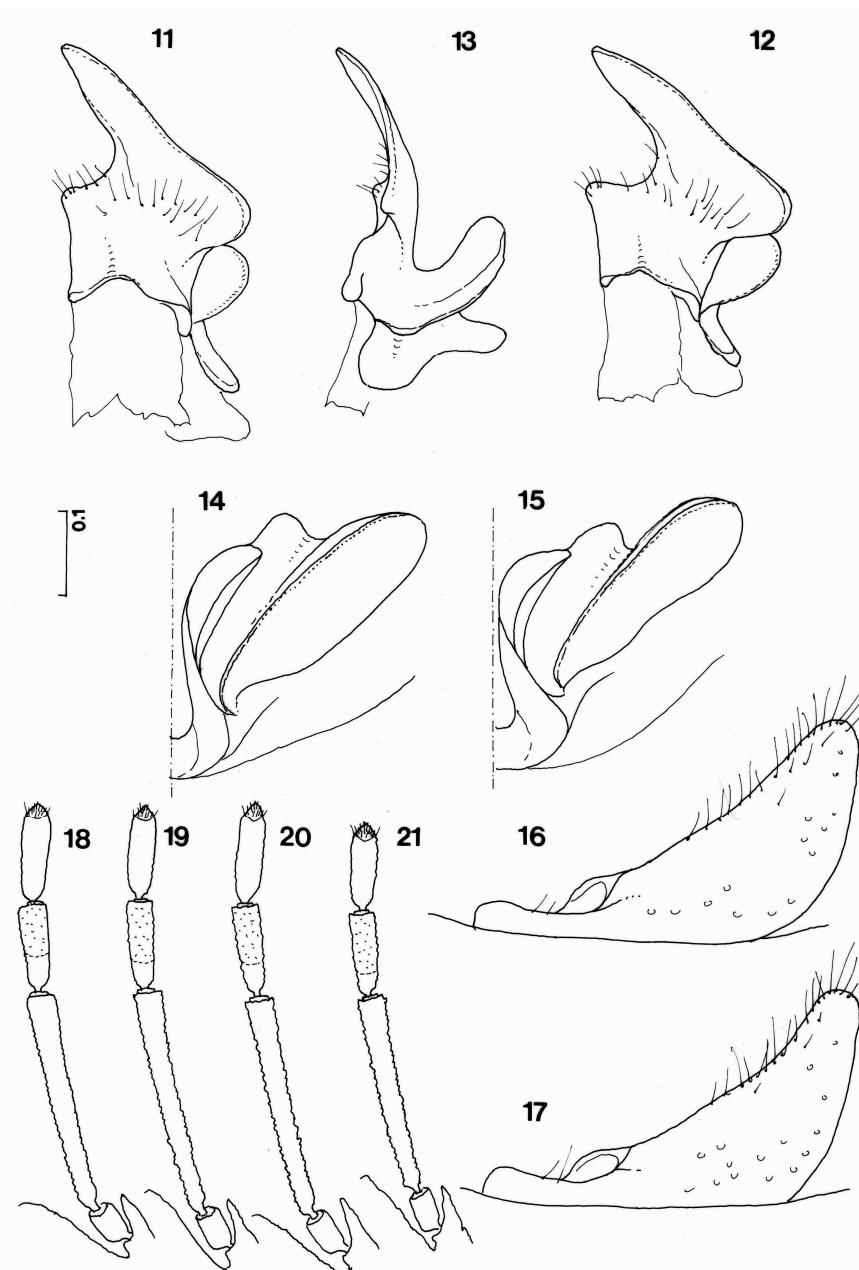
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Figs 1-10: *Neaneurus* species. (1-4) habitus of male specimens, (5-7) terminal segments of males, (8-10) terminal segments of females. (1, 6, 9) *shaanxianus*, (2, 7, 10) *macrotylus*; (3, 5, 8) *cai* nov.sp.; (4) *hubeiensis*. Scale: 1 mm for figs 1-4, 0.5 mm for figs 5-10.



Figs 11-21: Structures of *Aradus hieroglyphicus*. (11) left paramere of *hieroglyphicus* from Ussuri, (12) ditto of paratype of *chinensis*, (13) the same in lateral view; (14) tergite IX right half, specimen from Ussuri, (15) ditto of paratype of *chinensis*, (16) parandrium of Ussuri specimen, (17) ditto of paratype of *chinensis*, (18-21) right antennae. (18) specimen from Vinogradovka, Ussuri, (19) Primorsky Kraj, (20) Sichuan, China; (21) paratype *chinensis*. Scale: 0.1 mm for figs 11-17.